Chapter IV

Supporting the Full BPM Life-Cycle Using Process Mining and Intelligent Redesign

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Abstract

Business process management (BPM) systems provide a broad range of facilities to enact and manage operational business processes. Ideally, these systems should provide support for the complete BPM life-cycle: (re)design, configuration, execution, control, and diagnosis of processes. However, based on an extensive evaluation of the FileNet P8 BPM Suite, we show that existing BPM tools are unable to support the full life-cycle. There are clearly gaps between the various phases (e.g., users need to transfer or interpret information without any support) and some of the phases (e.g., the redesign and diagnosis phases) are not supported sufficiently. This chapter shows that techniques for process mining and intelligent redesign can
be used to offer better support for the (re)design and diagnosis phases and, thus, close the BPM life-cycle. We also briefly report on the work done in the context of the ProM tool, which is used as framework to experiment with such techniques.

Introduction

Business process management (BPM) systems can be seen as successors of workflow management (WFM) systems, which became popular in the mid-nineties. However, already in the seventies, people were working on office automation systems, which are comparable with today’s WFM systems. Consider, for example, the OfficeTalk system developed by Ellis et al. at Xerox that was already able to support administrative processes based on Petri-net-based specifications of procedures (Ellis, 1979). Today, many WFM systems are available (Aalst & Hee, 2004; Jablonski & Bussler, 1996; Lawrence, 1997; Mühlen, 2004). The core functionality of these systems can be described as the ability to support an operational business process based on an explicit process model, that is, automating the “flow of work” without necessarily automating individual activities.

Recently, WFM vendors started to position their systems as BPM systems. We define BPM as follows: Supporting business processes using methods, techniques, and software to design, enact, control, and analyze operational processes involving humans, organizations, applications, documents, and other sources of information (Aalst, Hofstede, & Weske, 2003). This definition restricts BPM to operational processes, that is, processes at the strategic level and processes that cannot be made explicit are excluded. It also follows that systems supporting BPM need to be “process aware.” After all, without information about the operational processes at hand, little support is possible. When comparing classical definitions of WFM (Lawrence, 1997) with the above definition of BPM, one could conclude that the main goal of BPM systems is to offer a broader set of functionalities and support of the whole process life-cycle. This is also the “sales pitch” that many vendors use to market their products. However, analysis of existing BPM systems shows that the functionality of these systems leaves much to be desired. In the first part of this chapter, we analyze the limitations of today’s BPM systems. Based on this analysis, problems are identified and in the second part of this chapter, we show how to address these problems.

Step 1: Evaluation of the FileNet P8 BPM Suite

The first goal of this chapter is to analyze whether today’s BPM systems actually support the BPM life-cycle. To do this, we use the BPM life-cycle as depicted in